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**COMBINED TRANSMITTAL OF APPEAL BRIEF TO THE BOARD OF PATENT
APPEALS AND INTERFERENCES & PETITION FOR EXTENSION OF TIME
UNDER 37 C.F.R. 1.136(a) (Large Entity)**

Docket No.
I-183

In Re Application Of: **Kunitoshi HAYASHI et al**

Serial No.
10/018,854

Filing Date
12/17/01

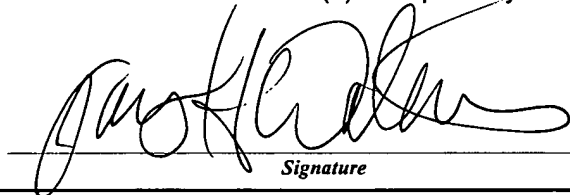
Examiner
L. S. Liang

Group Art Unit
2853

Invention: **INK-JET IMAGING APPARATUS**

TO THE COMMISSIONER FOR PATENTS:

This combined Transmittal of Appeal Brief to the Board of Patent Appeals and Interferences and petition for extension of time under 37 CFR 1.136(a) is respectfully submitted by the undersigned:


Signature

Dated: Jan. 28, 2004

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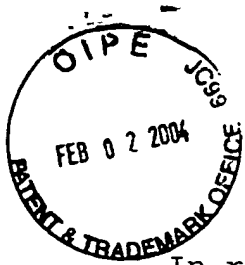
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Application of

Kunitoshi HAYASHI et al

Art Unit: 2853

S. N. 10/018,854

Examiner: L. Liang

Filed: December 17, 2001

For: INK-JET IMAGE FORMING DEVICE

BRIEF ON BEHALF OF APPELLANT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the Examiner's final rejection mailed
May 1, 2003.

REAL PARTY IN INTEREST

The real party in interest is Canon Finetech Inc., the
assignee of the application by merger of the original assignee,
Copolyer Co., Ltd.

RELATED APPEALS AND INTERFERENCES

No related appeals or interferences are known to appellant,
the appellant's legal representative, or assignee, which will
directly affect or be directly affected by or have a bearing on
the Board's decision in the pending appeal.

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STATUS OF CLAIMS

Page 1

Brief on Behalf of
Appellant
SN 10/018,854

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Claims 1-20 are pending in the application, are rejected, and are the claims under appeal. Appellant wishes to prosecute this appeal with respect to claims 1-20. An appendix of claims is included herewith.

This application was originally filed on December 17, 2001, and an U.S. national phase entry of PCT/JP00/04330 (filed June 30, 2000). A preliminary amendment was filed December 17, 2001. An office action was mailed October 24, 2002, and a response to that action was filed February 24, 2003. A final office action was mailed May 1, 2003, and a response after final was mailed September 2, 2003. The Examiner issued an advisory action September 24, 2003, maintaining the rejections, but noting that the response after final would be entered for purposes of appeal. Applicant filed a notice of appeal by fax on October 28, 2003, to which this present appeal brief relates.

STATUS OF AMENDMENTS

An amendment was filed subsequent to final rejection, and the Examiner indicated that the amendment would be entered for purposes of appeal.

SUMMARY OF THE INVENTION

The invention relates to ink jet printing, and more particularly to the electrical interconnection of the printing head with the carriage of the ink jet printer. The interconnection needs to be precise in order for the electrical signals to direct the print head to eject ink in the proper configuration to be precisely supplied to the print head. As the size of the components in printers is reduced and as the image resolution to be provided by printers increases, the density of the connections increases between the moving carriage and the print head carried thereon. So it becomes important to provide some mechanism or configuration to ensure that the connections are precisely made (the print head is removable/replaceable, and therefore the connections need to be precisely made when a new print head is install by a user of the printer).

To accomplish this, a contact base 40 (Fig. 3) is provided on the printer carriage (page 7, lines 24-26) (the carriage moves during print operations to cause ink ejected from the print heads to be delivered in bands to the paper, in a raster scan-like operation, to cause the page to be printed as desired). The contact base has a protrusion 40a (Fig. 7, page 8 lines 4-6) which fits in a corresponding hollow 26a in a receiving face 26 mounted to the carriage, and this allows the contact base to be swingable around the point where it touches the receiving face in all directions (page 8, lines 7-20, FIG. 7).

By applicants' configuration, the electrical connection faces of the device when a print head is installed can follow each other so that the connection faces are positioned with a generally uniform distance over the entire faces to ensure precise electrical connection.

THE ISSUES

The broad issue presented in this appeal is whether the Examiner's final rejection of claims 1-20 is proper. The issue may be stated more narrowly as:

1. Whether claims 15-20 are unpatentable under 35 U.S.C. §112, second paragraph, for being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; and

2. Whether claims 1-14 are unpatentable under 35 U.S.C. §102(b) over Pinkernpell et al (U.S. patent 4,907,018).

GROUPING OF CLAIMS

Claims 1-14 stand or fall together but do not stand or fall with claims 15-20.

Claims 15-20 stand or fall together in that the claims 16-20 all depend from claim 15, and the issues of rejection of claims 15-20 are related to indefiniteness rejections, and not rejections over art, hence claims 15-20 do not stand or fall with claims 1-14, the issues being different, and resolution of the issues with respect to claims 15-20 and the issues with respect

to claims 1-14 would have no effect on each other. Claims 1-14 on the other hand are rejected over cited art and not over indefiniteness issues, and thus the resolution of the issues surrounding claims 1-14 would not be resolved by resolution of issues surrounding claims 15-20.

ARGUMENT

1. Claims 15-20 are definite and are in compliance with 35 U.S.C. §112, second paragraph.

The question of the Examiner regarding claim 15 not being clear is related to the language of the claim that the Examiner states as:

including a contact base having a single
protrusion extending from a first surface and
a opposite second surface

[see office action of May 1, 2003, page 2, 2nd paragraph of numbered section 1, lines 6 and 7]

This language does not appear in this exact form as set out by the Examiner in the rejection. The actual particular language of the claim is:

including a contact base having a single
protrusion extending from a first surface,
said contact base having a second surface on
the opposite side of the contact base

Applicant respectfully submits that this claim language on its face is clear in that the contact base has a first surface with a protrusion extending therefrom. Also, the contact base has a second surface on the opposite side of the contact base

from the first surface. Even if it were not clear on its face, the claim is to be interpreted in light of the specification, and this portion of the claim is believed to be clear and definite, especially when considered in view of the specification.

Considering for example, FIG. 7. The following items are shown in the drawing (reference is given to portions of the specification where these items are discussed):

Contact base 40 (specification page 7 lines 24-25)

Printing head 18K (specification page 7, line 27)

The contact base has protrusions 40a at the center of the face [of the contact base] confronting the receiving face 26 (page 8 lines 2-6)

From inspection of the FIG. 7, it is apparent that the face of the contact base 40 that is opposite from the face contacting item 26 is in contact with the printing head 18K.

Later in the language of claim 15, it is stated that:

said second circuit face positioned on the
contact base second surface

So, even if it was initially unclear what was meant in the claim language, the additional language noted immediately above would clarify what was meant.

The Examiner further questions the language "defining a touching point with the contact base being pivotable about the touching point on two different axes". The Examiner asserts that

"The Y reference pad comprises the upper vertical surface 56y of the sculpted surface. The Z reference pad comprises the inner horizontal surface 56z of the sculpted surface. The junction of 56y and 56z comprises a pivot point or rotation point 56r, about which the cartridge 14 rotates during the lock in operation."

Pinkerpell uses the term rotation point 56r. However what Pinkerpell is describing is a pivot axis, an axis defined by two planes, i.e. the planes which pass through surfaces 56y and 56z. Try as one skilled in the art might to build a print cartridge that rotates about two planes by following Pinkerpell's teaching, it wouldn't work. In fact there is no teaching in any of the documents cited which would motivate one skilled in the art to even try. Only applicants' invention as disclosed and claimed teaches the advantages of having a first electric face and a second electric face that follow each other by being pivotable about two mutually perpendicular axes. In addition only applicants have invented the structure to make two axis pivotal movement possible.

The Examiner states Pinkerpell's second circuit face 16 can pivot about the spring pad 24 during installation. Again applicants respectfully disagree with the Examiner's interpretation of Pinkerpell's teaching. Referring to Pinkerpell FIG 8 and Col 2 lines 66 to Col. 3 line 3, the document states:

"The interconnect strip 16 comprises a strip of flexible dielectric material [with] conducting lines 28 ... The conduction lines terminate in contact bumps 30 which are configured in a particular pattern."

this is not proper grammar. Applicant respectfully believes that this is perfectly acceptable English language construction, in that the use of the word "being" here is clearly referring to the contact base being pivotable about the touching point. Applicant respectfully believes the language is clear and proper to state this in the manner given.

The Examiner had also mentioned lack of antecedent basis for "the carrier" in claim 16. Applicant addressed this in the response to the final office action (which response was entered) noting that it was a typographical error and that it was supposed to read "the carriage" and that there is antecedent basis for "the carriage".

It is accordingly respectfully believed that the language of the claim is definite and is in compliance with 35 U.S.C. §112, second paragraph.

2. Claims 1-14 are patentable over Pinkerpell et al. The Examiner rejected claims 1-14 under 35 U.S.C. §102(b) as allegedly being anticipated by Pinkerpell et al. Of these claims, only claim 1 is independent, and claims 2-14 depend therefrom.

Applicants respectfully disagree with the Examiner's interpretation of what the Pinkerpell et al document teaches. Pinkerpell discloses in Col 3 lines 56-62:

Figure 8 of Pinkerpell shows the pattern of bumps 30 in a rectilinear matrix. Col. 3 lines 4-6 of Pinkerpell continues:

The bumps 26 ... are configured in the same pattern as the contact dimples 30.

Clearly no pivoting can occur between two rectilinear matrices of contact points. Applicant's claim 1 recites that each of the first circuit and the second circuit face are pivotable about 2 mutually perpendicular axes. Pinkerpell does not teach this and thus cannot anticipate the claim.

The Examiner identifies figure 1 column 1; column 2 lines 1-6 as allegedly demonstrating Pinkerpell has anticipated claims 2-5 & 7-9. Pinkerpell discloses a print cartridge 14 with electrical contact pads 48 (FIG 9) which become aligned with contact dimples 30 (FIG 8) on the interconnect strip once the cartridge 14 is snapped into the carriage 12. During installation of Pinkerpell's print cartridge the contact pads 48 do not follow the contact dimples 30 in any direction because the contact dimples do not move. In fact Pinkerpell spends considerable disclosure on how the "contact pads 48 on the cartridge contact 46 get wiped slightly by the convex dimples 30" (Col 5, lines 15-16), i.e. they move relative to each other. Once Pinkerpell's cartridge is installed, it is locked in place. Col. 5 lines 24-26 continues:

"This occurs when the cartridge's outer rear heel lock tabs 84a, c engage the sides

86a,c of the heel lock slot 86 on the carriage 12."

Pinkerpell's adjacent surfaces do not follow each other after installation either.

Regarding claim 6, Pinkerpell does not suggest using anything like applicants' contact base. Applicants' pushing member therefore functions differently from Pinkerpell spring pad.

Regarding claims 10 and 12, the Examiner identifies reference 27 in FIG 2 as allegedly demonstrating Pinkerpell's anticipation of a contact base having a protrusion formed near the gravity center of the contact base and touching the carriage. Pinkerpell's pips 27 have almost nothing in common with applicants' claimed protrusion. In fact, their presence serves to highlight that Pinkerpell's interconnect strip of dielectric material 16 is not intended to move. It is not intended to pivot and it is not intended to follow a corresponding surface of electrical contacts. If we refer to Col. 2 lines 61-65 and FIG. 8 of Pinkerpell, it states:

"The base support 18 and the chute 20 are aligned in the proper relationship by molded-in features such as pips 27, which engage through corresponding openings in the interconnect strip 16 into opposed openings in the other member."

Regarding claims 11 and 13, as discussed, swing movement about a touching point is not possible with Pinkerpell's device.

There is no touching point taught or suggested, and, as discussed, Pinkerpell's interconnection strip is fixed.

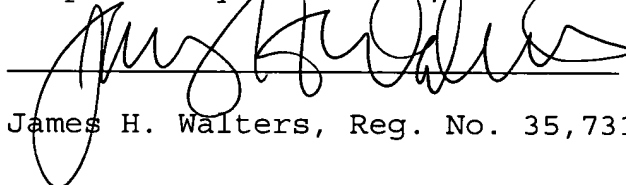
Claim 14 depends from and includes all the limitations of claim 6 which is believed to be allowable. Claim 14 is therefore considered to be allowable.

In view of these points above, it is respectfully submitted that the rejection under 35 U.S.C. §102(b) should not be sustained.

CONCLUSION

In view of the foregoing, it is submitted that claims 1-20 of this application are patentable, and it is accordingly requested that the Examiner's final rejection be reversed and that allowance of this application be directed.

Respectfully submitted,

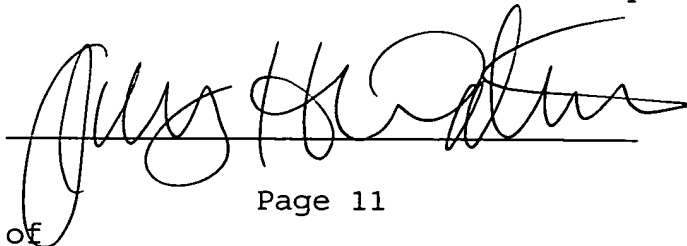


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Brief on Behalf of
Appellant
SN 10/018,854

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Application of

Kunitoshi HAYASHI et al

Art Unit: 2853

S. N. 10/018,854

Examiner: L. Liang

Filed: December 17, 2001

For: INK-JET IMAGE FORMING DEVICE

APPENDIX OF CLAIMS

1. (previously amended) An ink-jet imaging apparatus which is provided with a printing head having a first circuit face having plural first electric connection points, and a carriage having a second circuit face having plural second electric connection points to be connected respectively to the first electric connection points, and which forms an image by ejecting an ink from the printing head with reciprocating movement of the carriage in a main scanning direction in accordance with image signals transmitted through the first electric connection points and the second electric connection points,

wherein one of the first circuit face and the second circuit face moves to follow the other circuit face, each of the first circuit and the second circuit face being pivotable about 2 mutually perpendicular axes.

2. (original) The ink jet imaging apparatus according to claim 1, wherein the first circuit face follows the second circuit face by movement in a direction crossing the second circuit face.

3. (previously amended) The ink jet imaging apparatus according to claim 1, wherein the second circuit face follows the first circuit face by movement in a direction crossing the first circuit face.

4. (previously amended) The ink jet imaging apparatus according to claim 1, wherein the first circuit face follows the second circuit face by movement in a direction nearly parallel to the second circuit face.

5. (previously amended) The ink jet imaging apparatus according to claim 1, wherein the second circuit face follows the first circuit face by movement in a direction nearly parallel to the first circuit face.

6. (previously amended) The ink jet imaging apparatus according to claim 1, wherein the apparatus comprises a contact base which has the second circuit face fixed thereon and follows the first circuit face by movement in the crossing direction, and

a pushing member which is held at least between the second circuit face and the contact base and/or between the first circuit face and the printing head.

7. (original) The ink jet imaging apparatus according to claim 6, wherein the contact base follows the first circuit face by movement in a direction nearly parallel to the first circuit face.

8. (original) The ink jet imaging apparatus according to claim 6, wherein the contact base is replaced by another contact base which has the first circuit face fixed thereon and follows the second circuit face by movement in the crossing direction.

9. (original) The ink jet imaging apparatus according to claim 8, wherein the contact base follows the second circuit face by movement in a direction nearly parallel to the second circuit face.

10. (previously amended) The ink jet imaging apparatus according to claim 6, wherein the contact base has a protrusion formed near the gravity center of the contact base and touching the carriage.

11. (previously amended) The ink-jet imaging apparatus according to claim 10, wherein the contact base follows the first circuit face or the second circuit face by swing movement around

the touching point of the protrusion touching the carriage at the center.

12. (previously amended) The ink jet imaging apparatus according to claim 6, wherein the carriage has a protrusion to touch the contact base at or near the gravity center of the contact base.

13. (original) The ink jet imaging apparatus according to claim 12, wherein the contact base follows the first circuit face or the second circuit face by swing movement around the touching point of the protrusion touching the contact base as the center.

14. (previously amended) The ink jet imaging apparatus according to claim 6, wherein the first circuit face or the second circuit face confronting the pushing member is flexible.

15. (previously amended) An ink-jet imaging apparatus of the type having a carriage and a printing head attachable to the carriage comprising: a first circuit face having first electric connection points attached to the printing head, and a second circuit face having second electric connection points attached to the carriage, including a contact base having a single protrusion extending from a first surface, said contact base having a second surface on the opposite side of the contact base, the tip of the single protrusion contacting the carriage and defining a touching

point with the contact base being pivotable about the touching point on two different axes, said second circuit face positioned on the contact base second surface and being continuously contactable with said first circuit face.

16. (previously amended) An ink jet imaging apparatus according to claim 15 wherein the carriage has a receiving face, said receiving face includes a hollow, said hollow being slightly larger in size than the tip of said contact base protrusion so the tip of said contact base protrusion comes into contact with the bottom face of said hollow.

17. (previously presented) An ink jet imaging apparatus according to claim 15 further comprising at least one protrusion extending from said contact base second surface and extending through said second circuit face, and said first circuit face, and said at least one protrusion being pivotable with the pivotable contact base.

18. (previously presented) An ink jet imaging apparatus according to claim 17 further comprising an elastic pushing member arranged between said contact base second surface and said second circuit face pushing said second circuit face into contact with said first circuit face, and said at least one protrusion extending through said pushing member.

19. (previously presented) An ink jet imaging apparatus according to claim 17 wherein said printing head includes at least one fitting hole for receiving at least one protrusion, said fitting hole having a slant face thereby guiding said at least one protrusion into said fitting hole.

20. (previously presented) An ink jet imaging apparatus according to claim 15 wherein said second circuit face includes plural spherical protrusions at said second electric connection points, said spherical electrical protrusions making electrical contact with said first electric connection points.